

## NEED BASED TECHNOLOGICAL INTERVENTIONS IN TRIBAL VILLAGES UNDER TRIBAL SUB PLAN

T. Rajula Shanthi<sup>1\*</sup>, C. Jayabose<sup>2</sup> and Bakshi Ram<sup>3</sup>

<sup>1</sup>Principal Scientist (Agricultural Extension), ICAR-Sugarcane Breeding Institute,  
Coimbatore -641007

<sup>2</sup>Principal Scientist (Genetics), ICAR-Sugarcane Breeding Institute, Coimbatore -641007

<sup>3</sup>Director, ICAR-Sugarcane Breeding Institute, Coimbatore -641007

E-mail: rajula.sbi@gmail.com (\*Corresponding author)

**Abstract:** Tribal Sub Plan (TSP) is a comprehensive strategic approach adopted by the Government of India for the welfare and development of Scheduled Tribes in the country. TSP is being implemented in ICAR-Sugarcane Breeding Institute, Coimbatore since 2014-15 in four hill ranges (Thondamuthur, Attapadi, Karamadai and Palamalai) covering 17 villages of Coimbatore and Palakkad districts. This paper describes the approach involved in choosing beneficiary tribal villages, participatory approach therein to identify the felt needs of tribal people and the technological interventions carried out in these adopted tribal villages. Success stories like drudgery reduction using double potted chulahs, development of tailoring skill among tribal women, mini-flour mill in Kuzhiyur and honey production in Palamalai hills are described in detail.

**Keywords:** Tribal Sub Plan, Technological interventions, Impact analysis, Success stories.

### Introduction

Tribal Sub Plan is a comprehensive strategic approach adopted by the Government of India for the welfare and development of Scheduled Tribes (STs) in the country (Rao and Reddy 2015). The concept of Tribal Sub Plan launched in the Fifth Plan aims to ensure integrated development of the various scheduled tribe communities in the country with the aid of all pooled financial resources of the Centre and the States, keeping in view their different economic and socio-cultural backgrounds (Planning Commission of India, 2006). The broad objectives of the TSP are:

- Substantial reduction in poverty and unemployment.
- Creation of productive assets in favour of STs to sustain the growth likely to accrue through development efforts.
- Human resource development of the STs by providing adequate educational and health services, and
- Provision of physical and financial security against all types of exploitation and oppression.

ICAR-Sugarcane Breeding Institute at Coimbatore and its Regional Centres in different States of India is playing a pivotal role in sugarcane improvement in the country since its inception in 1912. Apart from the happenings involving sugarcane crop, the Institute had also stretched its activities for the betterment of tribal people through the Tribal Sub Plan, being implemented at this Institute since 2014.

## **Research Methodology**

### **The Approach**

Social set up of tribal villages was something totally unfamiliar to us. Every village we visited was different in all aspects of life and getting acquainted with these intricacies took sufficient time which we mastered by frequent visits.

**Requirement Analysis:** As an initial step, requirement of the tribal people was analyzed through personal interactions and focus group discussions conducted in the villages with the tribal headman and villagers. Participatory rural appraisal techniques like transect walks, livelihood analysis, gender analysis, matrix ranking, venn diagrams, seasonal analysis conducted with the tribal people gave us a vivid picture of the village setting.

**Holistic Approach:** The information so gathered was analyzed and problem-cause diagrams were prepared for each village. Subsequently, the problems (both felt and unfelt) were prioritized and the crucial ones were considered for immediate action. A work plan was prepared for each beneficiary village taking into account the felt needs of the people, resources available, expertise required and manpower availability. The technological interventions were carefully chosen so as to have a sustainable livelihood for the tribal villagers, drudgery reduction for tribal women and employment generation for tribal youth. The Task Force constituted by the Planning Commission recommended that 'unless a scheme directly benefits STs, expenditure on it may not be called under TSP' (Planning Commission, 2010). Accordingly, care was taken to choose all beneficiaries belonging to Scheduled Tribe alone. Rao and Reddy, 2015 had indicated that the tribal communities predominantly depend on cultivation of lands for their livelihood. The major problems in the area are lack of food security, land alienation, displacement, exploitation, erosion of tribal cultural values, lack of access to government programs, and inadequate policies and laws in force. The areas surveyed by us were no different from these observations. Patel, 2014 suggested a holistic approach to tribal development aimed at comprehensive development of the area as a whole with a focus on the development of infrastructural facilities.

## **BENEFICIARY VILLAGES**

The year-wise 17 beneficiary tribal villages identified since 2014 for implementation of the project are given below:

**2014-15:** Thondamuthur range: 1. Attukkal; Boluvampatti range: 1. Sarkarporethy, 2. Sadivayal, 3. Vellapathy

**2015-16:** Attapadi hill range: 1. Vellamari, Agali, Palakkad District, Kerala; Boluvampatti hill range: 1. Pottapathi, 2. Seengampathi

**2016-17:** Karamadai Forest Range: 1. Kuzhiyur

**2017-18:** Palamalai Hill range, Periyanaikenpalayam: 1. Pasumani, 2. Pasumanipudur, 3. Mankuzhi, 4. Perukkpathy, 5. Perukkpathy pudur, 6. Kunjoorpathi; Pilloor Dam Reserve Forest Area: 1. Keththakadu, 2. Veerakkal, 3. Maanaar, 4. Korapathi

## **Results and Discussion**

### **The interventions**

#### **Sustainable Horticultural Village - Attukkal**

- Fascinated by the response of the villagers in Attukkal, we had aimed to create a ‘Sustainable Horticultural Village’. With 61 families settled in 54 houses in an area of around two acres in the foothills, this village was found best suited for interventions in terms of horticultural crops and bring nutritional security. The responsive attitude of the tribal people “Irulas” in this village was our motivating factor.

- With not ample scope for area or water facility, we had restricted our support in terms of supply of seedlings of coconut (42 nos), nerium (102 nos.), sapota (31 nos.), mosambi (5 nos.), curry leaf (50 nos.), acid lime (31 nos.), custard apple (4 nos.), jasmine (5 nos.), guava (3 nos.), betel nut (37 nos.), gooseberry (20 nos.) and pomegranate (5 nos). We also took the privilege of helping them plant the saplings in a scientific way by proper potting mixture and well protected with bamboo cages with little support for watering. We envisaged nutritional security in this adopted village in the years to come due to this technological intervention and transform a barren land into a self-sustained groove.

#### **Sustainable Mechanized Village - Vellamari**

- TSP was implemented in Vellamari, Palakkad district, Kerala with emphasis on mechanization in agriculture. There are 196 households in this village owning 110 acres of cultivable land wherein crops like coconut, arecanut, banana, vegetables, wild jasmine, pulses

etc. are cultivated. During the focus group discussions held in this village, it was understood that the usage of machineries was minimum but for spade, hand hoe and sprayers.

- Realizing this, we took the initiative of converting this village into a ‘Sustainable mechanized village’ and made them form a group called ‘Vellamari Adivasi Development Group’ and got it registered with Agali panchayat. Thereafter, we supplied a four-wheel drive mini-tractor with accessories viz., trailer, cultivator, rotavator and other minor implements like brush cutter, sprayers, spade etc. On-farm training and demonstration on the usage of these machineries were also organized.

### **Sustainable Horticultural Village - Sarkarporethi**

- Sarkarporethi is a tribal village in Boluvampatti range with around 20 acres of cultivable land owned by 22 families and their demand was mainly for horticultural plants and minor irrigation facility. Lemon air layering plants (200) and jasmine plants (1500) along with nutrient mixture, saplings of red rose, moringa, clove, nutmeg, pepper, litchi, rambutan, egg fruit, surinam cherry along with garden tools were supplied to them in 2015. The villagers were enthusiastic in this activity but water shortage was a stumbling block.

### **Sustainable Agricultural Village- Kuzhiyur**

- Kuzhiyur is a tribal village in Karamadai range with more than 80 acres of arable land owned by 65 families. The villagers are enterprising and had tried their hands on many avenues for improving their livelihood. We had distributed four wheel drive tractor with accessories like trailer, tiller and rotavator, multipurpose thresher, improved seeds of pulses and vegetables, coconut seedlings, lime air layered plants, sewing machines (6), bullocks (3), milching animals (3), power sprayers (10), mini flour mill and brush cutter to the village. Other agri-inputs were made available to the villagers to improve their agricultural productivity and livelihood.

- Subsequently, items namely country plough, field operation kits (Rose can-5litre, Crowbar, Digging fork, spade, Hand hoe, Measuring tape 30m, plastic pan, plastic shears, Bill hook) tarpaulin sheets, multipurpose pans also were given to the villagers on various occasions.

### **Interventions in Palamalai Hills**

- Surveys were conducted in 21 villages of Palamalai hill range and finally six villages (Perukkaipathi, Perukkaipathipudhur, Kunjoorpathi, Maankuzhi, Pasumani, Pasumanipudhur) were selected. Water is a limiting factor in these villages and is totally rainfed. However, terrace cultivation with crops like horsegram, Sorghum, cowpea ragi etc. are being done. Our

interventions in this tract were supply of sewing machines (23), honey bee-hives (40), power sprayers (7), farm operation kits, crow bars, country plough, tarpaulin sheets and induction stoves (40).

### **Interventions in Pilloor Dam Areas**

- Tribal villages in the entire hill range covering over 11 villages were surveyed and finally four villages (Maanar, Korapathi, Veerakkal, Gethakkadu) were selected. Banana is the main crop as they have access to good water. Vegetables and other field crops are grown in limited area. Our interventions in this tract were supply of the following items –sewing machine (1), power weeder, brush cutter, multipurpose pans, field operation kits, country ploughs, sprayers, tarpaulin sheets, multipurpose pans.

### **Training programs**

We had 12 one-day training programs organized in the adopted tribal villages on Seed Production/Nursery, Kitchen gardening, Vermicomposting, Use of Agricultural machinery, Health and hygiene, Demo cum training on Use of brush cutter, Apiculture including honey extraction, Food and Nutrition and Awareness Campaigns on Cleanliness and Parthenium eradication.

The Success Stories visualized due to the technological interventions in the beneficiary tribal villages are discussed below:

### **Success Story - I**

#### ***Drudgery reduction for tribal women- Double potted chulahs***

- Attukkal village was adopted by the institute during the first phase of the programme (2014-15). As a drudgery reducing measure for tribal farm women, double potted fuel efficient chulahs were supplied to 30 tribal women (Fig. 1). These chulahs can be used for cooking and water heating. The overall dimension is 55x30x25 cm with a fuel inlet of 15.5x15 cm and an air inlet of 15.5x15 cm with six legs. The double pot portable chulah (chimneyless) is made with two walls. It costs Rs 450 per unit and has an efficiency of 26%.
- Feedback from tribal women says that these chulahs apart from fuel efficiency, reduced the time taken for cooking and the food retained heat for a long duration than the conventional chulahs being used by them.
- Collection of firewood remains a big ordeal for tribal women, more so with the ban on felling trees in the forest. Most of the households do not have a gas connection and realizing this felt need, we provided 12 induction stoves to tribal women of Kuzhiyur (Fig. 1) and they found the stoves to be of immense utility especially during rainy seasons when they cannot

go out to collect firewood and they have no facilities to store firewood in a protected place from getting wet. Geared by this success, induction stoves were provided to 40 tribal women in six tribal villages (Perukkaipathi, Perukkaipathipudhur, Kunjoorpathi, Maankuzhi, Pasumani, Pasumanipudhur) of Palamalai hills in phase-III of the project.



Fig. 1. Supply of improved chulahs and induction stoves to tribal women

## Success Story -II

### *Development of tailoring skills among women from marginalised communities*

▪ Development of Tailoring Skills among the tribal women is a field action project which was started in April 2016, with the objective of training women from marginalised tribal groups and help them gain employment or self-employment. The women from these groups have responded to this activity enthusiastically as it is helping them to not only develop skills, but also gain self-confidence to earn money. Six sewing machines were given to them, of which two tribal women had opened a tailoring unit in Melbaaviyur village and they reported that they earn Rs. 3500 to Rs. 4000 per month. As a follow-up of skill development, these tribal women had furthered their skill with training through a local tailor (Fig. 2). They are guided to start their own ventures and further advance short term training will be given to them if needed. Taking cue from this success story, we have upscaled this activity in Paalamalai hills.

• In March 2018, we had provided 23 sewing machines for 23 tribal women in Neelampathi, Ikkapathi, Mottiyoor, Ukkaiyanoor, Perukkupathi and Pasumani who were Certificate holders in tailoring as a means to improve their livelihood (Fig. 2). These women had stitched school uniforms in June 2018 for two schools in Periyanaickenpalayam and they have got order for 2019 as well. This is the first time that these tribal women, whose livelihood had so far been farming on small patches of land in the reserve forest fringes or picking up dry leaves and wood, have managed to find themselves a non-seasonal profession.



Fig. 2. Tailoring initiatives for tribal women

### Success Story - III

#### Mini Flour Mill at Kuzhiyur

- The major crops grown in Kuzhiyur tribal village are horse gram, ragi, Sorghum and beans. The villagers, especially women had to travel a large distance to grind the millets raised by them and the wheat procured from PDS outlets. Realizing this, a Mini-Flour Mill was given to Kuzhiyur tribal village, wherein developmental activities are being done by the Institute since 2016 (Fig. 3). The flour mill has been put to use to grind over one metric tonne of wheat, ragi, Sorghum and other minor millets.
- This facility is now being used by the villagers in Kuzhiyur as well as tribal people from nearby five tribal villages. The money obtained in this is deposited in the common savings bank account of a Self Help Group run by the tribal women of Kuzhiyur village.



Fig. 3. Flour mill being put to use in tribal village

## Success Story - IV

### Apiary in Palamalai Hills

- *Bee-hives – A mode of income and a tactic to ward off elephants:* To prevent crop damage by elephants and create business opportunities, we have given 40 honey-bee hives to Paalamalai tribal villages in the Western Ghats. During our earlier interaction with the tribal villagers, we learnt that the villagers were worried about their livelihoods as the elephants pose a threat to their cultivation. Also, we could notice the availability of varied sweet smelling flowers like *Pavetta indica*, wild jasmine and a variety of creepers. So, we thought to make the villagers produce honey by rearing honey bees.
- Honey bee-hives were ordered from a cultivator in Erode and it was transported in the night as the bees are night blind and will not try escaping the hive and they are also sensitive to change in surroundings (Fig. 4). We foresee that the villagers can get a substantial income from their venture into apiary. Another 50 bee-hive units were given to Agali village as well.
- In ‘Kisan Samridhhi Mela’ organized by the Institute during 24-26 August 2018, the tribal villagers had a shared stall wherein ‘Palamalai then (honey)’ were displayed for sale at a cost of Rs 110 for 250 gm and it was a crowd gatherer with the entire stock getting over in two days.



Fig. 4. Supply of bee hives to tribal villages and sale of tribal honey

The overall impact of the implementation of TSP in the selected seventeen tribal villages indicates the benefits of improved livelihood, reduced drudgery of tribal people especially women, realization of the importance of secondary agriculture, creation of employment opportunities, lean season occupation etc. Deka et al. 2019 in their study on impact of implementation of TSP in Kakopathar and Margheria blocks reported the benefits as, assured

sustainable livelihood, occupational security and risk or hazards free health and environment to the tribal farmers by adopting agricultural practices<sup>1</sup>.

### **Conclusion**

Our entire outreach efforts at the Institute so far were on cane growers and cane development officials of the country. The sanctioning of Tribal Sub Plan (TSP) by the Ministry of Tribal Affairs through Indian Council of Agricultural Research and the modalities of functioning of this strategy was something singular and we started anew. Each village we visited was different in all aspects of life and getting a clear picture of their social set-up took considerable time. Frequent visits and focus group discussions with tribal village head and the villagers helped us to chart out the technological interventions uniquely for every village as per their requirements.

It was a challenging sojourn throughout, at times even with encounter with wild beings. However, the benefits for the tribal people accrued during the journey make us go an extra mile to create a smile in their lives.

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